FINAL REPORT

ANNUAL DIRECT OBSERVATION SURVEY OF SAFETY BELT USE

Prepared for:
Office of Highway Safety Planning
4000 Collins Road
Lansing, MI

Prepared by:
Wayne State University
Transportation Research Group
Detroit, MI

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16. Abstract

This study reports the results of the Annual Direct Observation Survey for safety belt use in Michigan in 2006. The annual observational survey began on August 12 and continued through September 5, 2006. There were 192 intersection/interchange sites used for the survey. All drivers and front-seat passengers were observed for the safety belt use and categorized by vehicle type, vehicle use, gender, age and race. There were a total of 17,949 vehicles observed. The total number of unweighted driver and passenger observations was 22,351 observations. Male pick-up truck occupants remain to have the lowest safety belt use rate. The statewide safety belt use rate was found to be 94.3% ± 0.61% with a relative error of 0.33%. This reflects an increase in safety belt usage by 0.3% since the 2006 *Click It or Ticket* Observational Survey.

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1.0 INTRODUCTION

Increasing the use of safety restraint systems while driving or traveling as a passenger in an automobile is one of the most effective and cost-effective ways of reducing injuries and fatalities on the nation's highways; however, one out of five drivers and front-seat passengers continue to ignore laws and safety precautions and drive/ride unbuckled in the nation. Efforts have been made to increase the use of safety belts over three decades, yet nationwide approximately 18 percent of the drivers and front-seat passengers do not buckle up while driving or riding in an automobile [1]. In Michigan, past safety belt use studies indicate that the overall use by drivers and front-seat passengers has been increasing consistently over the past five years. The past six years' experience is as follows:

2000 - 83.5%
2001 - 82.3%
2002 - 82.9%
2003 - 84.8%
2004 - 90.5%
2005 - 92.9%
2006 - 94.0% (2006 *Click It or Ticket* Observational Survey)

The above data indicates that the safety belt use rate in Michigan is far ahead of the national average and is one of nine states and territories with reported safety belt use rates greater than 90 percent [1]. It is important to recognize that Michigan is a "primary law" state, which means a motorist can be stopped and cited for the sole reason of not wearing a safety belt. In "secondary law" states, motorists must be stopped for another traffic-related offense in order to be ticketed for not wearing a safety belt. The "primary law" states averaged a safety belt use rate of 85 percent as compared to the "secondary law" states, which only averaged 75 percent in 2005 [2].

The use of safety belts is the single most effective means of reducing fatal and non-fatal injuries in vehicular crashes. Many studies have demonstrated the ability of safety belts to reduce the severity of injuries. The National Highway Traffic Safety Administration (NHTSA) estimates that 195,382 lives have been saved between 1975 and 2004 due to the use of safety belts [3].

They also contend that the non-use of safety belts can cause fatalities and severe injuries, which may result in an overall societal cost of 50 billion dollars in the nation each year [4].

Currently, airbag systems are a part of standard equipment in all vehicles. Vehicles equipped with airbags need the occupants to be restrained by safety belts in order to be effective in saving lives and reducing injuries in the event of a severe crash. Safety belts protect vehicle occupants by reducing the risk of ejection, impact with the vehicle interior, or being too close to deployed airbags.

Past studies indicate that the use of safety belts reduces the risk of fatal injury for driver and front-seat passengers by approximately 45 percent for passenger vehicles and 60 percent for light trucks. Moreover, the use of safety belts reduces the risk of moderate to critical injury by 50 percent for occupants of passenger vehicles and 65 percent for occupants of light trucks [3]. Therefore, a small increase in safety belt use often results in a large overall savings to society. The non-use of safety belts is a behavioral issue and, therefore, programs targeted to change driver behavior can have a long lasting impact in the safety belt use rate among the driving population.

1.1 Study Purpose and Objectives

The purpose of this statewide study was to perform observational surveys for 192 intersections/interchanges to determine the percentage of drivers and front-seat passengers utilizing their safety belts. The Annual Direct Observation Survey of Safety Belt Use was performed prior to the Labor Day holiday weekend. The specific objectives of this survey were as follows:

- Develop a methodology for collecting data for a representative sample of sites throughout the State, which ensured reliable statewide statistics, in an economically feasible manner.
- Provide training to all staff conducting the observation surveys and conduct quality assurance/quality control of the data collection efforts
- Perform direct observation surveys of the safety belt use in Michigan between August 12, 2006 and September 17, 2006 representing every day of the week and all daylight hours.
- Summarize the observational data of safety belt use and non-use in a tabular format.

- Generate necessary comparative data and statistical analyses to assess the relevancy of the 2006 annual observational data and results to previous observational results.
- Gauge the effectiveness of the Public Information, Education, and Enforcement programs regarding statewide mandatory safety belt use.

2.0 METHODOLOGY

In order to develop targeted public awareness programs to increase safety belt use, one must know the distribution of use rates in various parts of the state and among various demographic groups, in addition to knowing the overall safety belt use rate in the state. It is, however, important to capture the statewide use rate following the sampling strategy and data collection procedure recommended by NHTSA. WSU-TRG performed such observational surveys in the state as a part of this project.

The site selection methodology followed the procedure used in the Direct Observation of Safety Belt Use in Michigan surveys for the years 2000 to 2006. The uniform criteria, as presented in the Federal Register and the National Highway Traffic Safety Administration documents, was also examined carefully to ensure adherence to the nationwide standard. The methodology for the Annual Direct Observation Survey followed NHTSA's guidelines, resulting in the selection of areas in the state to encompass 85 percent of the population, is described as follows:

- The 32-county sample was selected for this survey that represented 86.86 percent of the state's population, based upon 2004 U.S. Bureau of Census Data estimates as shown in Table 1. This sample of counties also fulfills NHTSA's requirements. The counties included in the study are depicted in Figure 1.
- A system for partitioning the candidate counties into various strata, based upon safety belt use and vehicle miles traveled (VMT), was developed and is shown in Table 2. The number of observation sites for each stratum is also shown in Table 2. Forty-eight (48) sites were observed for Stratum 1, 50 sites for Stratum 2, 53 sites for Stratum 3, and 41 sites for Stratum 4. Expanding to 192 sites allowed the addition of sites to higher VMT strata, allowing for a more precise estimate of safety belt use. A complete listing of the 192 sites is provided in Appendix I.

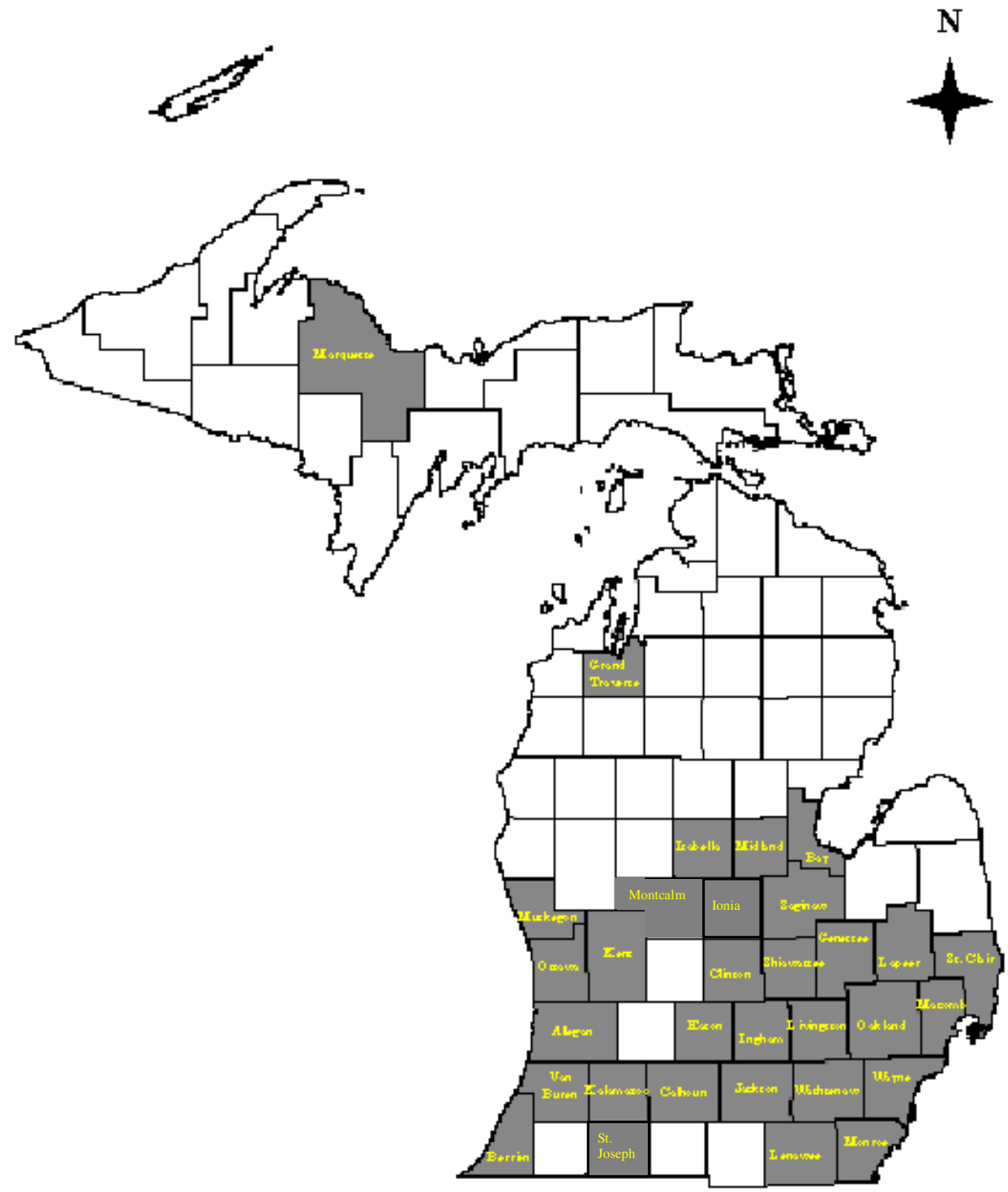

Figure 1. 32-County Statewide Sample for the Annual Direct Observation Safety Belt Survey

Table 1. U.S. Census Bureau 2004 Census Data for Michigan by County

State of Michigan Total Population = 10,112,620

Name of County	Population	Percent Population	Cumulative Percent Population Statewide for Michigan	County Ranking by Population	County Included in Study
Wayne County	2,016,202	19.94%	19.94%	1	Yes
Oakland County	1,213,339	12.00%	31.94%	2	Yes
Macomb County	822,660	8.13%	40.07%	3	Yes
Kent County	593,898	5.87%	45.94%	4	Yes
Genesee County	443,947	4.39%	50.33%	5	Yes
Washtenaw County	339,191	3.35%	53.69%	6	Yes
Ingham County	280,073	2.77%	56.46%	7	Yes
Ottawa County	252,351	2.50%	58.95%	8	Yes
Kalamazoo County	240,724	2.38%	61.33%	9	Yes
Saginaw County	209,062	2.07%	63.40%	10	Yes
Livingston County	177,538	1.76%	65.16%	11	Yes
Muskegon County	174,401	1.72%	66.88%	12	Yes
St. Clair County	170,916	1.69%	68.57%	13	Yes
Berrien County	163,125	1.61%	70.18%	14	Yes
Jackson County	162,973	1.61%	71.80%	15	Yes
Monroe County	152,552	1.51%	73.30%	16	Yes
Calhoun County	139,067	1.38%	74.68%	17	Yes
Allegan County	112,477	1.11%	75.79%	18	Yes
Bay County	109,480	1.08%	76.87%	19	Yes
Eaton County	107,056	1.06%	77.93%	20	Yes
Lenawee County	101,768	1.01%	78.94%	21	Yes
Lapeer County	92,510	0.91%	79.85%	22	Yes
Midland County	84,615	0.84%	80.69%	23	Yes
Grand Traverse County	82,752	0.82%	81.51%	24	Yes
Van Buren County	78,541	0.78%	82.29%	25	Yes
Shiawassee County	73,125	0.72%	83.01%	26	Yes
Clinton County	68,800	0.68%	83.69%	27	Yes
Marquette County	64,874	0.64%	84.33%	28	Yes
Isabella County	64,481	0.64%	84.97%	29	Yes
Ionia County	64,378	0.64%	85.60%	30	Yes
Montcalm County	63,627	0.63%	86.23%	31	Yes
St. Joseph County	62,964	0.62%	86.86%	32	Yes

Table 2. Vehicle Miles of Travel by Stratum

	VMT (2004) (in Thousands)	Total VMT (in Thousands)	Percent of Total VMT	Number of Sites
Stratum 1				
Ingham	2,589,095			
Kalamazoo	2,603,446			
Oakland	13,113,695			
Washtenaw	3,742,005			
Total Stratum 1 VMT		22,048,241	25.06%	48
Stratum 2				
Allegan	1,234,491			
Bay	1,325,042			
Eaton	1,189,516			
Grand Traverse	806,758			
Jackson	1,723,634			
Kent	5,773,450			
Livingston	1,954,324			
Macomb	6,527,891			
Midland	827,006			
Ottawa	2,077,284			
Total Stratum 2 VMT		23,439,396	26.64%	50
Stratum 3				
Berrien	2,180,694			
Calhoun	1,731,659			
Clinton	1,140,428			
Genesee	4,731,531			
Ionia	714,959			
Isabella	587,432			
Lapeer	892,081			
Lenawee	898,211			
Marquette	629,897			
Monroe	2,143,438			
Montcalm	589,027			
Muskegon	1,447,105			
Saginaw	2,259,369			
Shiawassee	779,541			
St. Clair	1,624,723			
St. Joseph	579,553			
Van Buren	1,000,428			
Total Stratum 3 VMT		23,930,076	27.20%	53
Stratum 4				
Wayne	18,575,126			
Total Stratum 4 VMT		18,575,126	21.11%	41
Total Strata VMT		**87,992,839**		**192**

- For each observation site, a minimum of 50 vehicles were observed in at least a 50-minute time frame. If more than 50 minutes were needed to complete 50 observations, the observations were appropriately reweighted, as explained below. The data collected for the 192 observation sites provided an accurate representation for each day of the week and each hour of the day for the safety belt use characteristics of the state.
- The locations of the 192 observation sites were randomly selected. The observation sites were distributed among limited access highways and major intersections. The sites were randomly chosen using a method that ensured an equal probability for each location in each stratum being selected as a candidate location. For the selection of the candidate locations, equal scale (3/8 inch = 1 mile) road maps were obtained for each county. A computerized grid was overlaid on each county map at 0.5-mile intervals in the horizontal and vertical directions. These squares represented a square area of 0.25 square miles. Each grid on the county map was assigned two numbers representing an X and Y coordinate. In addition, each grid was assigned a number by stratum. For each stratum, a random number was chosen between one and the number of grids covering the stratum. Then two additional random numbers were selected representing the X and Y coordinates of the selected grid. Random coordinates were chosen until an intersection was found located in the grid coordinates. This process was repeated until all the primary intersections were selected for the four strata. In addition, secondary intersections were selected for each primary intersection. Secondary intersections were selected within a 16 square mile area from the primary intersection site. For the selection of exit ramps, all exit ramps on limited access highways located within the strata were numbered sequentially. Random numbers were selected between one and the number of ramps to determine which exit ramps would be considered as candidate locations. An alternate exit ramp was also selected for each candidate location.
- Upon the determination of the sites, the direction of traffic flow, day of the week and time of day at each observation site was determined through a similar random sampling method ensuring equal probability. For each intersection randomly selected, the direction of traffic flow for observation was also randomly selected.

Random numbers between one and four were assigned for each primary and secondary intersection's direction of traffic movement. The selected random numbers represented one for eastbound, two for southbound, three for westbound and four for northbound. This process allowed random selection of the direction of traffic flow as well as the roadway for inclusion in the observation study.

- Since only non-moving traffic was observed at each site with a target of 50 vehicles, not all vehicles passing the observation site were included in the survey. Therefore, a 10-minute traffic count was the basis for estimating the number of vehicles passing the observation site per unit time. This data introduced a weighting factor for each observation site. The 10-minute count was collected in two 5-minute intervals; five minutes prior to the observational period and five minutes following the observational period.
- In order to minimize the travel time and distance required to conduct this study, the observation sites were clustered into geographic regions upon final selection without compromising the randomness of the data.

3.0 OBSERVER TRAINING

Several staff members from the WSU-TRG participated in the data collection for this project. Each of these staff members has or is pursuing an engineering degree and has been trained in general traffic data collection methods and procedures. Each staff member participating in this annual survey had also participated in the Evaluation of the 2006 May *Click It or Ticket* program. For this project, each data collector received specific training composed of technical assistance and field data collection. Each member of the data collection team participated in a reliability and repeatability study to reach a 95 percent or greater reliability and repeatability in their field data collection tests prior to being deployed for the data collection for this project. The repeatability of a measurement depends on the within-subject standard deviation, which can be calculated using a sample of closely repeated measurements. The repeatability coefficient is simply the within-subject standard deviation adjusted by a probability-based factor and is an estimate of the maximum difference likely to occur between two successive measurements on

the same subjects. Reliability concerns the extent to which repeated measurements by the same method on the same subject produce the same result.

The reliability and repeatability study was performed at one of the selected sample intersections for this project, Woodward Avenue and Warren Avenue, near the WSU campus. This intersection represents a typical high volume intersection that could be challenging for observational data collection. For two hours per day over five days, two observers were randomly paired and assigned to collect safety belt observational data for one direction of traffic flow at the selected intersection. Although the observers were observing the same traffic flow direction, they did not interact and did not necessarily observe the same vehicles.

The data was then summarized for each paired individual to determine the accuracy of their observations. Accuracy for each data collection entity was calculated greater then 95 percent. This training was given to the data collectors approximately one month prior to the first day of field data collection.

Upon completion of the training for the data collection team, each member of the team received a training manual composed of the information received during the training session, the schedule of data collection and all necessary field supplies.

Two field supervisors monitored the performance of the field observers. In order to establish a baseline reference of 'expected' safety belt use rates, preliminary observation data from previous studies was obtained for each stratum. The field data collectors submitted their observation data on a daily basis and it was immediately entered and compiled on computer spreadsheets at our WSU campus office. Comparisons were then made between the observed rates and the 'expected' safety belt use rates in order to identify any unexpected deviations in the data. Deviations were not found to be substantially different than anticipated.

4.0 DATA COLLECTION

Data collection for the annual direct observational survey occurred from August 14, 2006 through September 5, 2006. The driver of each vehicle and the passenger in the front right seat of the vehicle were observed for safety belt use, non-use and misuse. In the survey, both the driver and front-seat passenger were separately identified based upon their gender, estimated age and race. The vehicles were categorized into four groups: passenger vehicles, sport utility vehicles, vans or minivans, and pick-up trucks. The vehicles were also identified as being commercial or non-commercial vehicles.

The data collected in the field was recorded and returned to the office, observations were manually recorded on survey forms and returned back to the office within 24 hours of the data collection. This manual method was chosen due to concerns with computer screen visibility in sunlight or rainy conditions. The WSU-TRG believes that the manual method also increases the accuracy and data verification at the time of data entry.

5.0 DATA ANALYSIS

The data collected in the field was computerized by a team member and verified for accuracy by the project engineer and supervisor. Rates for safety belt use were determined for each survey stratum, county, location, etc., as well as the statewide average. A 95 percent confidence interval for the estimate of safety belt use was determined in order to meet the guidelines of NHTSA.

5.1 Weighted Safety Belt Use Calculations

The weighting by the number of vehicles observed with the total possible number of vehicles passing the observation point has been performed as described in the following calculations. First the number of vehicles observed at each intersection by the length of the observation time and then multiplying that value by a standard 50-minute observational period. This calculation provides the total number of vehicles that passed the observation point in a standard 50-minute period. The number of vehicles observed in the 10-minute volume count was then multiplied by 5 to represent the total number of vehicles available for observation. The total number of vehicles was then divided by the adjusted number of vehicles observed passing the observation point. The resulting factor was the volume weighting factor for that particular intersection. The

total number of drivers and passengers belted and not belted were then multiplied by the weighting factor to obtain the total number of weighted drivers and passengers that were belted and not belted. The weighted overall safety belt use rate by stratum was then determined by dividing the total number of belted drivers and passengers by the total number of drivers and passengers. The following calculations further describe the procedure outlined above.

Wayne County, Monroe and Ecorse intersection

Survey length = 60 minutes

Number of vehicles observed in 60 minutes = 147 vehicles

10-minute volume count = 107 vehicles

Standard 50-minute observational frequency (Adjusted number of vehicles) =

$$\frac{\text{Number of vehicles observed}}{\text{Survey length}} \times 50 \text{ minutes} =$$

$$\frac{147 \text{ vehicles}}{60 \text{ minutes}} \times 50 \text{ minutes} = 122.50 \text{ vehicles in 50 minutes}$$

Total number of vehicles available for observation = 10-minute vehicle count x 5 =

107 vehicles x 5 intervals = 535 vehicles in 50 minutes

Intersection volume weighting factor =

$$\frac{\text{Total number of vehicles}}{\text{Adjusted number of vehicles}} = \frac{535}{122.5} = 4.37$$

The variance for each stratum was determined by following Cochran's equation outlined in the 1977 publication "Sampling Techniques, 3rd Edition". The variance calculation is as follows:

$$\text{Variance} = \frac{n}{n-1} \sum_i \left(\frac{g_i}{\sum g_k} \right)^2 (r_i - r)^2$$

In this formula, n represents the number of observation locations, g_i is the number of observations at each location, g_k is the total number of observations within a stratum, r_i is the safety belt use rate for each stratum and r is the overall safety belt use rate.

5.2 Overall Safety Belt Use Calculations

The weighted safety belt use rate was calculated by summing up the strata safety belt use rates, each multiplied by a vehicle miles of travel weighting factor for that stratum, divided by the sum of the vehicle miles of travel weighting factor. The four vehicle miles of travel totals were compared and Stratum 3 had the highest total, 23,930,076, and was assigned a factor of 1.0. The other three strata's weighting factors were determined by dividing the vehicle miles of travel for that stratum by Stratum 3's vehicle miles of travel. Stratum 1 was assigned a weighting factor equal to 22,048,241 VMT divided by 23,930,076 VMT in Stratum 3. Stratum 2 was assigned a weighting factor equal to 23,439,396 VMT in Stratum 2 divided by 23,930,076 VMT in Stratum 3. Stratum 4 was assigned a weighting factor equal to 18,575,126 VMT in Stratum 4 divided by 23,930,076 VMT in Stratum 3. This produced a weighting factor for Stratum 1 of 0.92, for Stratum 2 of 0.98 and for Stratum 4 of 0.78. The total weighting factors equaled 3.68.

The overall statewide variance was calculated in a similar manner as the overall statewide safety belt use rate. The overall statewide variance was found by summing the product of each stratum's variance by the squared weighting factor and divided by the sum of the squared weighting factors.

The 95 percent confidence interval is equal to the weighted safety belt use rate plus/minus 1.96 (for the Z-test at alpha = 0.05) multiplied by the square root of the stratum's or statewide variance expressed as a percent. The standard error is equal to the square root of the variance. The relative error must be less than five percent according to NHTSA guidelines and is equal to the standard error divided by the weighted statewide safety belt use rate.

The data was also analyzed and compared with studies from previous years to assess the progress of the safety belt campaign by the State of Michigan.

6.0 RESULTS AND CONCLUSIONS

The annual direct observational survey was performed between Monday, August 14 and Tuesday, September 5 of 2006. During this observation period, a total of 17,949 vehicles were observed at 192 observation sites randomly selected to represent statewide safety belt use. In comparison with the pre and post-enforcement surveys conducted earlier in 2006, 14,807 vehicles were observed during the pre-enforcement survey and 14,750 vehicles were observed during the post-enforcement survey. Therefore, approximately 1,200 to 3,100 more vehicles were observed during this survey.

The overall weighted safety belt use rates for the annual direct observational survey and the *Click It or Ticket* post-enforcement survey are shown in Table 3. Since the post-enforcement survey was conducted in June of 2006, the safety belt use rate has risen 0.3 percent to 94.3 percent. The overall weighted safety belt use rates were calculated based upon the procedure described in the "Overall Safety Belt Use Calculations" section in the Data Analysis section of the report. The weighted percent of safety belt use referenced in the summary tables has been calculated per the "Weighted Safety Belt Use Calculations" also detailed in the Data Analysis section of this report.

Table 3. Weighted Safety Belt Use Rates for Drivers and Front-Seat Passengers

Observational Wave	Safety Belt Use Rate	Standard Error	Relative Error
Annual Direct Observational Survey	94.3% ± 0.61%	0.31%	0.33%
June Statewide Survey	94.0% ± 1.27%	0.60%	0.69%

The findings for the annual direct observational survey and the *Click It or Ticket* post-enforcement survey for the strata are shown in Table 4. The safety belt use rates for each stratum have remained stable since the *Click It or Ticket* Observational Survey in June of 2006. Stratum 3 recorded an increase in safety belt use of 1.3 percent since the earlier survey in June. Additional breakdowns of the safety belt use rates and standard error on a county level are provided in Appendix II. Complete details of the observations on an intersection level are provided in Appendix III.

Table 4. Weighted Safety Belt Use Rates for Drivers and Front-Seat Passengers by Stratum

Stratum	Annual Direct Observational Survey		June Statewide Survey	
	Safety Belt Usage Rate*	Standard Error	Safety Belt Usage Rate*	Standard Error
Stratum 1	95.2% ± 0.99%	0.50%	95.6% ± 0.77%	0.39%
Stratum 2	94.6% ± 1.30%	0.67%	94.7% ± 0.99%	0.50%
Stratum 3	92.7% ± 1.60%	0.82%	91.4% ± 1.9%	0.97%
Stratum 4	94.7% ± 0.97%	0.50%	94.5% ± 1.04%	0.53%

* Weighted Safety Belt Usage ± 95% Confidence Interval

Table 5 summarizes the descriptive statistics regarding the observational surveys in terms of day of the week and time of the day.

Table 5. Descriptive Statistics

Day of the Week	No. of Sites Observed	Percent of Sites in Day of Week	Actual Total No. of Observations	Percent of Observations in Day of Week
Sunday	16	8.3%	1,165	6.5%
Monday	25	13.0%	2,555	14.2%
Tuesday	25	13.0%	1,872	10.4%
Wednesday	43	22.4%	4,395	24.5%
Thursday	37	19.3%	4,062	22.6%
Friday	17	8.9%	1,322	7.4%
Saturday	29	15.1%	2,578	14.4%
Total	**192**	**100%**	**17,949**	**100%**
Time of the Day	**No. of Sites Observed**	**Percent of Sites in Time of Day**	**Actual Total No. of Observations**	**Percent of Observations in Time of Day**
7 am – 8 am	2	1%	183	1%
8 am – 9 am	9	4.7%	913	5.1%
9 am – 10 am	17	8.9%	1,524	8.5%
10 am – 11 am	17	8.9%	1,586	8.8%
11 am – 12 pm	24	12.5%	2,176	12.1%
12 pm – 1 pm	24	12.5%	2,316	12.9%
1 pm – 2 pm	28	14.6%	2,441	13.6%
2 pm – 3 pm	21	10.9%	2,057	11.5%
3 pm – 4 pm	24	12.5%	2,045	11.4%
4 pm – 5 pm	16	8.3%	1,679	9.4%
5 pm – 6 pm	7	3.6%	664	3.7%
6 pm – 7 pm	3	1.6%	365	2%
Total	**192**	**100%**	**17,949**	**100%**

The safety belt use rate can be described for by the overall use rate, by stratum, by vehicle type and by various demographics. Table 6 summarizes safety belt use rate by driver, front-seat passenger and total observations. It should be noted that the weighted safety belt use rates provided in the following tables (Tables 6 through 12) vary from those provided in Table 3. Table 3 utilized the "Overall Safety Belt Use Calculations" as described in the Data Analysis Section of this report. The overall weighted safety belt use percentages are calculated by weighting the safety belt use rates by VMT by stratum. The weighted safety belt use rates provided in Tables 4 and 6 through 12 are calculated based upon the "Weighted Safety Belt Use Calculations", as described in the Data Analysis Section of this report. The weighted safety belt use percentages are calculated by utilizing the intersection weighting factor as previously defined. As the data presented in these tables are not subdivided by county or strata, the overall state weighted safety belt use rates utilizing the VMT calculation are not applicable.

Table 6. Safety Belt Use Summary

Driver Belt Use	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted Percent of Safety Belt Use**
Not Belted	1,033	2,476	5%
Belted	16,863	47,184	94.7%
Belted Under Arm	27	83	0.2%
Belted Behind Back	26	47	0.1%
Total	**17,949**	**49,790**	**100%**
Passenger Belt Use	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted Percent of Safety Belt Use**
Not Belted	297	709	6.2%
Child Seat	4	7	0.1%
Belted	4,076	10,618	93.1%
Belted Under Arm	11	47	0.4%
Belted Behind Back	14	29	0.2%
Total	**4,402**	**11,410**	**100%**
Total Belt Use	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted Percent of Safety Belt Use**
Not Belted	1,330	3,185	5.2%
Child Seat	4	7	0.1%
Belted	20,939	57,802	94.4%
Belted Under Arm	38	130	0.2%
Belted Behind Back	40	76	0.1%
Total	**22,351**	**61,200**	**100%**

Table 7 summarizes the statewide driver and front-seat passenger safety belt use rates by stratum and county. In Table 7, the counties are listed by stratum. Because of the relatively low number of sites and/or observations in many counties, the safety belt use rates listed may not be fully representative of each county. The use rates indicated are the weighted average of the observations taken in each county.

Table 7. Safety Belt Use Rates by Stratum and County

	All Vehicles Safety Belt Use		
Stratum 1	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Ingham County	1,626	3,532	96%
Kalamazoo County	904	2,367	96.3%
Oakland County	1,652	5,944	93.5%
Washtenaw County	1,233	4,038	96.3%
Total	**5,415**	**15,881**	**95.2%**
Stratum 2	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Allegan County	435	1,317	97.6%
Bay County	282	225	92%
Eaton County	987	2,017	96.8%
Grand Traverse County	197	720	95.9%
Jackson County	580	719	93.3%
Kent County	879	1,181	90.8%
Livingston County	668	941	91.5%
Macomb County	735	3,043	94.5%
Midland County	495	227	93.7%
Ottawa County	219	283	94.6%
Total	**5,477**	**10,673**	**94.6%**

Table 7. Safety Belt Use Rates by Stratum and County (Continued)

Stratum 3	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
Berrien County	428	620	88.6%
Calhoun County	536	854	96.9%
Clinton County	473	458	89.3%
Genesee County	748	2,134	92.6%
Ionia County	266	432	83.4%
Isabella County	146	265	80.8%
Lapeer County	140	253	94.3%
Lenawee County	269	1,172	95.5%
Marquette County	275	315	85.4%
Monroe County	582	954	93.3%
Montcalm County	264	254	91.2%
Muskegon County	352	345	85.2%
Saginaw County	57	23	82.6%
Shiawassee County	417	375	98.3%
St. Clair County	195	165	93.6%
St. Joseph County	189	450	95.8%
Van Buren County	406	1,379	96.2%
Total	**5,743**	**10,448**	**92.6%**
Stratum 4	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Wayne County	**5,716**	**24,198**	**94.7%**

Tables 8 through 12 summarize occupant safety belt use by vehicle type for the survey day of the week, time of the day, gender, age and race.

Table 8. All Vehicles Safety Belt Use Summary

	All Vehicles Safety Belt Use		
Day of the Week	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Sunday	1,668	2,449	94.0%
Monday	3,073	10,062	95.8%
Tuesday	2,259	5,056	94.2%
Wednesday	5,289	14,873	93.4%
Thursday	4,841	16,017	93.8%
Friday	1,698	3,434	94.3%
Saturday	3,523	9,309	96.2%
Total	**22,351**	**61,200**	**94.5%**
Time of Day	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
7 am – 8 am	226	659	95.4%
8 am – 9 am	1,079	2,516	95.6%
9 am – 10 am	1,852	5,328	93.5%
10 am – 11 am	1,962	4,400	93.4%
11 am – 12 pm	2,757	5,836	94.6%
12 pm – 1 pm	2,884	6,347	94.7%
1 pm – 2 pm	3,071	10,294	93.4%
2 pm – 3 pm	2,545	6,299	94.3%
3 pm – 4 pm	2,568	7,157	96.0%
4 pm – 5 pm	2,127	8,730	95.4%
5 pm – 6 pm	837	2,104	94.1%
6 pm – 7 pm	443	1,530	93.5%
Total	**22,351**	**61,200**	**94.5%**
Vehicle Type	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Passenger Cars	10,764	30,978	95.5%
Sport Utility	4,385	12,341	95.1%
Vans/Minivans	2,886	7,537	94.9%
Pick-up Trucks	4,316	10,344	90.4%
Total	**22,351**	**61,200**	**94.5%**

Table 8. All Vehicles Safety Belt Use Summary (Continued)

Gender	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
Male	12,329	33,419	93.1%
Female	10,022	27,781	96.1%
Total	**22,351**	**61,200**	**94.5%**
Age	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
0-3	7	17	100%
4-15	444	1,085	92%
16-29	5,913	17,303	93.6%
30-59	13,344	36,006	94.7%
60+	2,643	6,789	95.6%
Total	**22,351**	**61,200**	**94.5%**
Race	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Caucasian	19,211	48,740	94.9%
African American	2,437	10,138	92.4%
Asian or Pacific Islander	542	2,023	94.3%
Hispanic	145	277	94.4%
Native American	16	22	100%
Total	**22,351**	**61,200**	**94.5%**

Table 9. Passenger Cars Safety Belt Use Summary

	Passenger Cars Safety Belt Use		
Day of the Week	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Sunday	738	1,098	93.4%
Monday	1,535	5,251	96.6%
Tuesday	1,018	2,426	93.9%
Wednesday	2,636	8,047	94.9%
Thursday	2,379	8,058	95%
Friday	752	1,527	95.5%
Saturday	1,706	4,571	97.4%
Total	**10,764**	**30,978**	**95.5%**
Time of Day	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
7 am – 8 am	108	312	95.2%
8 am – 9 am	521	1,261	97.1%
9 am – 10 am	873	2,662	94.7%
10 am – 11 am	861	1,987	95.1%
11 am – 12 pm	1,264	2,709	95.4%
12 pm – 1 pm	1,352	3,192	95.4%
1 pm – 2 pm	1,419	5,065	94.6%
2 pm – 3 pm	1,232	3,102	95.7%
3 pm – 4 pm	1,263	3,619	96.2%
4 pm – 5 pm	1,134	4,849	96.5%
5 pm – 6 pm	460	1,181	95%
6 pm – 7 pm	277	1,039	93.8%
Total	**10,798**	**30,978**	**95.5%**
Gender	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	5,318	15,500	94.2%
Female	5,446	15,478	96.7%
Total	**10,798**	**30,978**	**95.5%**

Table 9. Passenger Cars Safety Belt Use Summary (Continued)

Age	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
0-3	1	4	100%
4-15	169	416	95%
16-29	3,506	10,447	94%
30-59	5,639	16,261	96.3%
60+	1,449	3,850	96.1%
Total	**10,764**	**30,978**	**95.5%**
Race	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Caucasian	8,847	23,251	96%
African American	1,515	6,319	93.4%
Asian or Pacific Islander	331	1,270	96.6%
Hispanic	63	128	95.3%
Native American	8	10	100%
Total	**10,764**	**30,978**	**95.5%**

Table 10. Sport Utility Vehicles Safety Belt Use Summary

	Sport Utility Vehicles Safety Belt Use		
Day of the Week	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Sunday	326	466	94.8%
Monday	595	2,028	95.7%
Tuesday	404	912	95.7%
Wednesday	1,038	2,977	93.5%
Thursday	1,093	3,614	94.7%
Friday	277	598	96.2%
Saturday	652	1,746	97.1%
Total	**4,385**	**12,341**	**95.1%**

Table 10. Sport Utility Vehicles Safety Belt Use Summary (Continued)

Time of Day	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
7 am – 8 am	44	129	97.7%
8 am – 9 am	239	540	96.1%
9 am – 10 am	379	1,092	95.6%
10 am – 11 am	486	1,052	95.6%
11 am – 12 pm	511	1,178	95.2%
12 pm – 1 pm	589	1,376	95.3%
1 pm – 2 pm	608	2,093	94.3%
2 pm – 3 pm	442	1,185	94.3%
3 pm – 4 pm	432	1,270	96.3%
4 pm – 5 pm	403	1,709	94.8%
5 pm – 6 pm	181	470	93.2%
6 pm – 7 pm	71	247	95.1%
Total	**4,385**	**12,341**	**95.1%**
Gender	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	2,075	5,733	94.1%
Female	2,310	6,608	95.9%
Total	**4,385**	**12,341**	**95.1%**
Age	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
0-3	4	11	100%
4-15	92	250	88%
16-29	1,025	3,097	94.6%
30-59	2,855	7,927	95.5%
60+	409	1,056	94.7%
Total	**4,385**	**12,341**	**95.1%**
Race	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Caucasian	3,810	10,077	95.7%
African American	444	1,859	92.8%
Asian or Pacific Islander	101	357	90.5%
Hispanic	28	45	88.9%
Native American	2	3	100%
Total	**4,385**	**12,341**	**95.1%**

Table 11. Vans/Minivans Safety Belt Use Summary

	Vans/Minivans Safety Belt Use		
Day of the Week	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Sunday	230	365	96.4%
Monday	372	1,099	98.1%
Tuesday	285	623	97.1%
Wednesday	681	1,774	93.5%
Thursday	601	1,838	92.8%
Friday	240	499	93.8%
Saturday	477	1,339	96.2%
Total	**2,886**	**7,537**	**94.9%**
Time of Day	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
7 am – 8 am	24	72	100%
8 am – 9 am	138	323	95.7%
9 am – 10 am	234	689	96.1%
10 am – 11 am	273	617	95%
11 am – 12 pm	378	778	95.9%
12 pm – 1 pm	365	705	95%
1 pm – 2 pm	380	1,205	91.9%
2 pm – 3 pm	351	816	96.9%
3 pm – 4 pm	348	913	94.2%
4 pm – 5 pm	271	1,086	96.6%
5 pm – 6 pm	89	213	92.5%
6 pm – 7 pm	35	120	88.3%
Total	**2,886**	**7,537**	**94.9%**
Gender	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	1,430	3,699	93.7%
Female	1,456	3,838	96.1%
Total	**2,886**	**7,537**	**94.9%**

Table 11. Vans/Minivans Safety Belt Use Summary (Continued)

Age	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
0-3	1	1	100%
4-15	90	203	92.1%
16-29	419	1,264	94.1%
30-59	1,971	5,069	95.1%
60+	405	1,000	95.7%
Total	**2,886**	**7,537**	**94.9%**
Race	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Caucasian	2,529	6,125	95.3%
African American	256	1,070	92.7%
Asian or Pacific Islander	76	292	94.9%
Hispanic	22	45	100%
Native American	3	5	100%
Total	**2,886**	**7,537**	**94.9%**

Table 12. Pick-up Trucks Safety Belt Use Summary

	Pick-up Trucks Safety Belt Use		
Day of the Week	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Sunday	374	520	92.7%
Monday	571	1,684	91.9%
Tuesday	552	1,095	92.2%
Wednesday	934	2,075	87.2%
Thursday	768	2,507	89.7%
Friday	429	810	91%
Saturday	688	1,653	91.7%
Total	**4,316**	**10,334**	**90.4%**

Table 12. Pick-up Trucks Safety Belt Use Summary (Continued)

Time of Day	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
7 am – 8 am	50	146	91.8%
8 am – 9 am	181	392	89.8%
9 am – 10 am	366	885	85.3%
10 am – 11 am	342	744	84.5%
11 am – 12 pm	604	1,171	91.1%
12 pm – 1 pm	578	1,074	91.9%
1 pm – 2 pm	664	1,931	90.2%
2 pm – 3 pm	520	1,196	88.7%
3 pm – 4 pm	525	1,355	96.4%
4 pm – 5 pm	319	1,086	90.5%
5 pm – 6 pm	107	240	92.9%
6 pm – 7 pm	60	124	91.9%
Total	**4,316**	**10,344**	**90.4%**
Gender	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	3,506	8,487	90.1%
Female	810	1,857	92%
Total	**4,316**	**10,344**	**90.4%**
Age	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
0-3	1	1	1000%
4-15	93	216	90.7%
16-29	963	2,495	90.7%
30-59	2,879	6,749	89.8%
60+	380	883	94.1%
Total	**4,316**	**10,344**	**90.4%**
Race	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Caucasian	4,025	9,287	91.1%
African American	222	890	84.3%
Asian or Pacific Islander	34	104	77.9%
Hispanic	32	59	93.2%
Native American	3	4	100%
Total	**4,316**	**10,344**	**90.4%**

Overall, the occupants of passenger cars have the highest safety belt use rate which has increased by 1.1 percent since the June 2006 May *Click It or Ticket* evaluation. The sport utility vehicles recorded a decrease of 1.1 percent since the earlier survey in June. Pick-up trucks also recorded a decrease in safety belt use of 0.7 percent since June. Pick-up truck drivers and passengers still have the lowest overall safety belt use rate with a rate of 90.4 percent. During the year 2005, the highest pick-up truck safety belt use rate of 89.4 percent was recorded. Although a decrease in safety belt use since June has been recorded, the pick-up truck occupant safety belt usage has still increased by 1.0 percent between June of 2005 and late summer of 2006.

In general, safety belt use rates were higher on Saturday when compared to the other days of the week. The safety belt use rates varied by time of day with morning and late afternoon having slightly higher usage rates. Again, female occupants have higher use rates than their male counterparts by nearly 3 percent. The low number of observations of occupants from 0-3 years old may not be fully representative of the age group. Therefore, no conclusions can be made about that age group. Occupants from ages 4-15 were the lowest safety belt users and occupants ages 60+ were the highest safety belt users. In general, Caucasians have slightly higher safety belt use rates than African Americans, Asians and Hispanics. The low sample of Native Americans does not allow conclusions to be drawn regarding their usage.

Tables 13 through 17 summarize occupant safety belt use rates by vehicle type demographically subdivided by gender and age. Males aged 16-29 have the lowest safety belt use rate while females aged 4-15 have the lowest rate. Caucasian male pick-up truck occupants continue to have the lowest rates of safety belt use. In general, African American male and female occupants have lower safety belt use rates than those Caucasian occupants.

Table 13. All Vehicles Demographic Summary

Demographic Data			All Vehicle Safety Belt Use		
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	0-3	Caucasian	1	1	0%
		Total	**1**	**1**	**0%**
	4-15	Caucasian	217	495	92.1%
		African American	27	125	92%
		Asian or Pacific Islander	7	23	95.7%
		Hispanic	6	15	93.3%
		Total	**257**	**658**	**92.2%**
	16-29	Caucasian	2,405	6,263	92.8%
		African American	416	1,642	87.5%
		Asian or Pacific Islander	95	384	93%
		Hispanic	47	76	90.8%
		Native American	1	1	100%
		Total	**2,964**	**8,366**	**91.7%**
	30-59	Caucasian	6,632	16,610	93.8%
		African American	764	3,187	91.1%
		Asian or Pacific Islander	221	844	92.2%
		Hispanic	58	115	93.9%
		Native American	4	5	100%
		Total	**7,679**	**20,761**	**93.3%**
	60+	Caucasian	1,389	3,483	95.3%
		African American	34	134	90.3%
		Asian or Pacific Islander	4	15	86.7%
		Native American	1	1	100%
		Total	**1,428**	**3,633**	**95.1%**
	TOTAL		**12,329**	**33,419**	**93.1%**
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Female	0-3	Caucasian	3	3	100%
		African American	1	4	100%
		Asian	2	9	100%
		Total	**6**	**16**	**100%**
	4-15	Caucasian	171	368	90.8%
		African American	11	44	95.5%
		Asian or Pacific Islander	2	10	100%
		Hispanic	2	4	100%
		Native American	1	1	100%
		Total	**187**	**427**	**91.6%**

Table 13. All Vehicles Demographic Summary (Continued)

Female (Continued)	16-29	Caucasian	2,320	6,342	95.6%
		African American	509	2,172	94.7%
		Asian or Pacific Islander	108	394	96.7%
		Hispanic	10	27	100%
		Native American	2	2	100%
		Total	**2,949**	**8,937**	**95.4%**
	30-59	Caucasian	4,909	12,235	96.8%
		African American	630	2,628	95.4%
		Asian or Pacific Islander	102	340	99.1%
		Hispanic	21	39	100%
		Native American	3	3	100%
		Total	**5,665**	**15,245**	**96.6%**
	60+	Caucasian	1,164	2,940	96.6%
		African American	45	202	91.3%
		Asian or Pacific Islander	1	4	0%
		Hispanic	1	1	100%
		Native American	4	9	100%
		Total	**1,215**	**3,156**	**96.1%**
	TOTAL		**10,022**	**27,781**	**96.1%**

Table 14. Passenger Cars Demographic Summary

Demographic Data			Passenger Cars Safety Belt Use		
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	4-15	Caucasian	83	179	93.3%
		African American	16	76	96.1%
		Asian or Pacific Islander	1	1	100%
		Hispanic	2	4	100%
		Total	**102**	**260**	**94.2%**
	16-29	Caucasian	1,198	3,184	92.2%
		African American	292	1,123	88.2%
		Asian or Pacific Islander	69	293	94.2%
		Hispanic	24	41	87.8%
		Native American	1	1	100%
		Total	**1,584**	**4,642**	**91.3%**

Table 14. Passenger Cars Demographic Summary (Continued)

Male (Continued)	30-59	Caucasian	2,375	6,447	96.2%
		African American	425	1,798	92.2%
		Asian or Pacific Islander	135	523	96.0%
		Hispanic	17	37	97.3%
		Native American	2	1	100%
		Total	**2,954**	**8,806**	**95.3%**
	60+	Caucasian	660	1,711	96.2%
		African American	15	70	94.3%
		Asian or Pacific Islander	2	10	100%
		Native American	1	1	100%
		Total	**678**	**1,792**	**96.1%**
	TOTAL		**5,318**	**15,500**	**94.2%**
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Female	0-3	African American	1	4	100%
		Total	**1**	**4**	**100%**
	4-15	Caucasian	57	119	96.6%
		African American	6	23	91.3%
		Asian or Pacific Islander	2	10	100%
		Hispanic	2	4	100%
		Total	**67**	**156**	**96.2%**
	16-29	Caucasian	1,481	3,983	96.2%
		African American	365	1,545	95.7%
		Asian or Pacific Islander	68	253	98%
		Hispanic	7	23	100%
		Native American	1	1	100%
		Total	**1,922**	**5,805**	**96.1%**
	30-59	Caucasian	2,253	5,697	97.6%
		African American	366	1,558	96.1%
		Asian or Pacific Islander	54	180	100%
		Hispanic	10	18	100%
		Native American	2	2	100%
		Total	**2,685**	**7,455**	**97.4%**
	60+	Caucasian	740	1,931	96.2%
		African American	29	122	93.4%
		Hispanic	1	1	100%
		Native American	1	4	100%
		Total	**771**	**2,058**	**96.1%**
	TOTAL		**5,446**	**15,478**	**96.7%**

Table 15. Sport Utility Vehicles Demographic Summary

Demographic Data			Sport Utility Vehicles Safety Belt Use		
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	0-3	Caucasian	1	1	100%
		Total	**1**	**1**	**100%**
	4-15	Caucasian	37	102	82.4%
		African American	9	34	100%
		Asian or Pacific Islander	2	4	100%
		Hispanic	1	2	0%
		Total	**49**	**142**	**85.9%**
	16-29	Caucasian	361	931	95.9%
		African American	51	205	93.2%
		Asian or Pacific Islander	16	60	86.7%
		Hispanic	6	10	90%
		Total	**434**	**1,206**	**94.9%**
	30-59	Caucasian	1,197	3,145	94.9%
		African American	128	529	92.2%
		Asian or Pacific Islander	32	124	84.7%
		Hispanic	14	24	91.7%
		Native American	1	2	100%
		Total	**1,372**	**3,824**	**94.2%**
	60+	Caucasian	210	529	94.5%
		African American	9	31	80.6%
		Total	**219**	**560**	**93.8%**
		TOTAL	**2,075**	**5,733**	**94.1%**
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Female	0-3	Caucasian	1	1	100%
		Asian	2	9	100%
		Total	**3**	**10**	**100%**
	4-15	Caucasian	41	97	89.7%
		African American	2	11	100%
		Total	**43**	**108**	**90.7%**
	16-29	Caucasian	478	1,433	95.5%
		African American	87	378	89.9%
		Asian or Pacific Islander	23	77	94.8%
		Hispanic	2	2	100%
		Native American	1	1	100%
		Total	**591**	**1,891**	**94.3%**

Table 15. Sport Utility Vehicles Demographic Summary (Continued)

Female (Continued)	30-59	Caucasian	1,305	3,399	96.8%
		African American	148	618	96.1%
		Asian or Pacific Islander	25	79	100%
		Hispanic	5	7	100%
		Total	**1,483**	**4,103**	**96.8%**
	60+	Caucasian	179	439	98.4%
		African American	10	53	81.1%
		Asian or Pacific Islander	1	4	0%
		Total	**190**	**496**	**95.8%**
	TOTAL		**2,310**	**6,608**	**95.9%**

Table 16. Vans/Minivans Demographic Summary

Demographic Data			**Vans/Minivans Safety Belt Use**		
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	4-15	Caucasian	46	94	97.9%
		African American	0	0	0%
		Asian or Pacific Islander	3	17	100%
		Hispanic	2	5	100%
		Total	**51**	**116**	**99.1%**
	16-29	Caucasian	139	367	94.8%
		African American	34	139	78.4%
		Asian or Pacific Islander	1	8	100%
		Hispanic	7	14	100%
		Total	**181**	**528**	**90.7%**
	30-59	Caucasian	857	2,017	94.6%
		African American	82	349	90.5%
		Asian or Pacific Islander	35	135	89.6%
		Hispanic	9	16	100%
		Native American	0	0	0%
		Total	**983**	**2,517**	**93.8%**
	60+	Caucasian	210	516	95%
		African American	4	19	100%
		Asian or Pacific Islander	1	3	100%
		Total	**215**	**538**	**95.2%**
	TOTAL		**1,430**	**3,699**	**93.7%**

Table 16. Vans/Minivans Demographic Summary (Continued)

Gender	Age	Race	Actual Total # of Observations	Weighted Total # of Observations	Weighted % of SBU
Female	0-3	Caucasian	1	1	100%
		Total	**1**	**1**	**100%**
	4-15	Caucasian	36	77	80.5%
		African American	3	10	100%
		Total	**39**	**87**	**82.8%**
	16-29	Caucasian	184	515	95.1%
		African American	39	169	100%
		Asian or Pacific Islander	14	50	100%
		Hispanic	1	2	50%
		Total	**238**	**736**	**96.5%**
	30-59	Caucasian	874	2,104	96.4%
		African American	89	361	95.8%
		Asian or Pacific Islander	22	79	98.7%
		Hispanic	3	8	100%
		Total	**988**	**2,552**	**96.4%**
	60+	Caucasian	182	434	96.1%
		African American	5	23	100%
		Native American	3	5	100%
		Total	**190**	**462**	**96.4%**
	TOTAL		**1,456**	**3,838**	**96.1%**

Table 17. Pick-up Trucks Demographic Summary

Demographic Data			Pick-up Trucks Safety Belt Use		
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Male	4-15	Caucasian	51	120	94.2%
		African American	2	15	53.3%
		Asian or Pacific Islander	1	1	0%
		Hispanic	1	4	100%
		Total	**55**	**140**	**89.3%**
	16-29	Caucasian	707	1,781	91.6%
		African American	39	175	83.4%
		Asian or Pacific Islander	9	23	91.3%
		Hispanic	10	11	90.9%
		Total	**765**	**1,990**	**90.9%**

Table 17. Pick-up Trucks Demographic Summary (Continued)

Male (Continued)	30-59	Caucasian	2,203	5,001	89.7%
		African American	129	511	86.5%
		Asian or Pacific Islander	19	62	80.6%
		Hispanic	18	38	89.5%
		Native American	1	2	100%
		Total	**2,370**	**5,614**	**89.3%**
	60+	Caucasian	309	727	93.9%
		African American	6	14	78.6%
		Asian or Pacific Islander	1	2	0%
		Total	**316**	**743**	**93.4%**
	TOTAL		**3,506**	**8,487**	**90.1%**
Gender	**Age**	**Race**	**Actual Total # of Observations**	**Weighted Total # of Observations**	**Weighted % of SBU**
Female	0-3	Caucasian	1	1	100%
		Total	**1**	**1**	**100%**
	4-15	Caucasian	37	75	93.3%
		Native American	1	1	100%
		Total	**38**	**76**	**93.4%**
	16-29	Caucasian	177	411	91%
		African American	18	80	86.3%
		Asian or Pacific Islander	3	14	71.4%
		Total	**198**	**505**	**89.9%**
	30-59	Caucasian	477	1,035	93.5%
		African American	27	91	76.9%
		Asian or Pacific Islander	1	2	0%
		Hispanic	3	6	100%
		Native American	1	1	100%
		Total	**509**	**1,135**	**92.1%**
	60+	Caucasian	63	136	97.8%
		African American	1	4	100%
		Total	**64**	**140**	**97.9%**
	TOTAL		**810**	**1,857**	**92%**

6.1 Program Comparisons

Table 18 summarizes the findings of the 2005 and 2006 safety belt observational surveys for the *Click It or Ticket* Mobilization and Annual Direct Observation. As seen in the table, the actual number of observations were greater in 2006 than in 2005, except for the statewide pre-enforcement wave. The number of weighted observations was greater for all observational waves in 2006 as compared to 2005. All surveys had an increase in safety belt use rates from 2005 to 2006.

Table 18. 2005 and 2006 Safety Belt Use Comparisons

Observational Survey	2005 No. of Sites	2006 No. of Sites	2005 Actual No. of Observations	2006 Actual No. of Observations	2005 Weighted No. of Observations	2006 Weighted No. of Observations	2005 Safety Belt Use Percent	2006 Safety Belt Use Percent
Statewide Pre-Enforcement	192	192	19,382	18,262	36,021	64,401	89.4%	89.9%
Statewide Post-Enforcement	192	192	16,981	20,472	36,842	63,821	92.9%	94.0%
Statewide Annual Direct	168	192	13,677	22,422	NA	61,269	87.9%	94.3%

Based upon the safety belt use rate trends shown in Figure 2, continued efforts in the media and with enforcement may reduce the variation between months. Continued monitoring of the media and enforcement efforts will ensure adequate behavioral modifications are maintained throughout the year. Maintaining similar funding and programs throughout the remainder of 2006 and in 2007, it would be expected that the safety belt usage rate in the 2007 pre-enforcement survey would be slightly more than 90 percent. If this is the case, this would be the first year Michigan would sustain a safety belt usage greater than 90 percent.

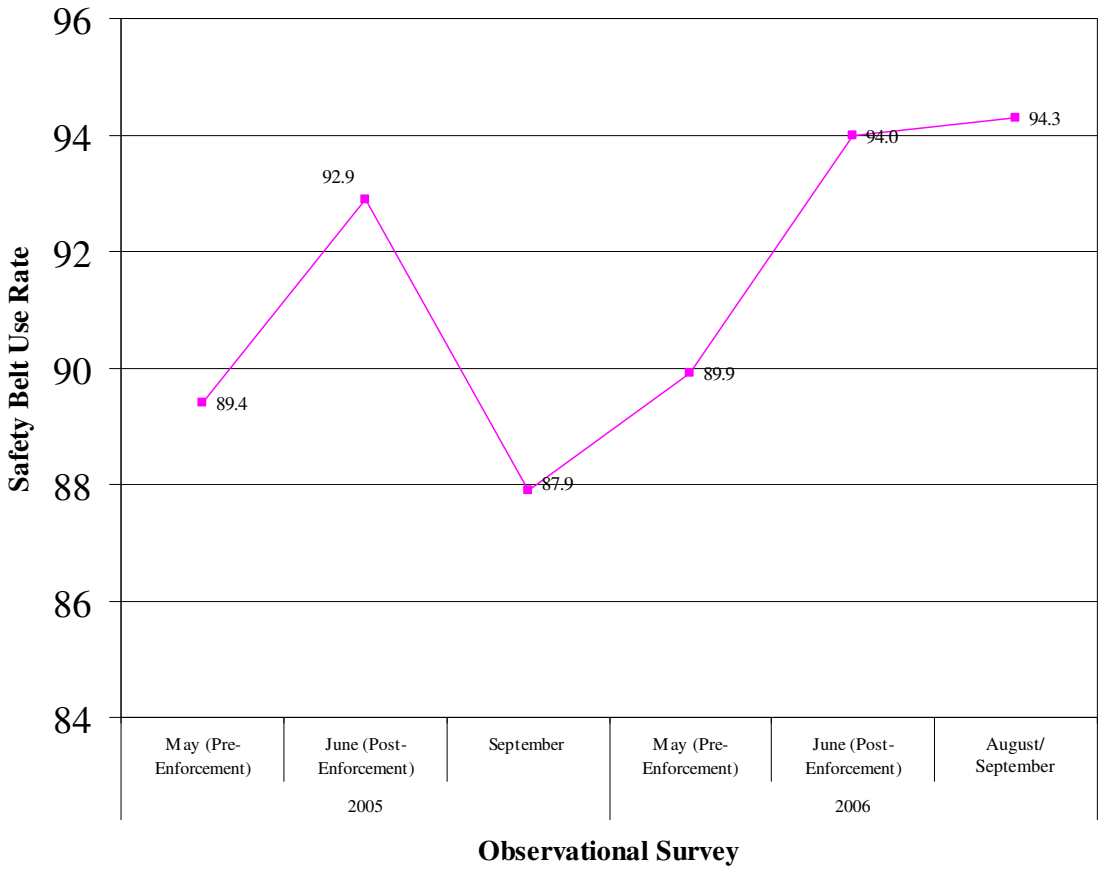

Figure 2. 2005 Through 2006 Safety Belt Use Rate Trends

6.2 Program Enhancements

The findings of the Direct Annual Observation Survey of safety belt use shows that males and pick-up truck occupants continue to have the lowest use rate, therefore, continued efforts to target these individuals should be considered in future programs. Programs should also be focused in urban areas to target a substantial portion of the state's population.

With the current success rate of the safety belt program in Michigan, increases in safety belt usage may continue to be moderate improvements or remain consistent over several years. As the safety belt usage rate shows slow to moderate growth, state funding agencies may alter their programs to focus on other areas of safety, such as drinking and driving. However, the gains from the safety belt usage awareness program in the past remain intact for the targeted enforcement programs.

REFERENCES

1. NHTSA's National Center for Statistics and Analysis, "Traffic Safety Facts Research Note," Safety Belt Use in 2005- Use Rates in the States and Territories, November 2005.

2. "Click It or Ticket Enforcement Planner Fact Sheet and Talking Points," Buckle Up America, U.S. Department of Transportation, NHTSA, 2006.

3. NHTSA's National Center for Statistics and Analysis, "Traffic Safety Facts – 2004 Data," Occupant Protection, U.S. Department of Transportation, NHTSA.

4. "The National Initiative for Increasing Safety Belt Use Buckle Up America Campaign," Eight Report to Congress, Sixth Report to the President, U.S. Department of Transportation, NHTSA, September 2005.

5. "Expanded Enforcement, New Advertisements Kick-Off Statewide Click It or Ticket Enforcement Effort," May 15, 2006, Michigan State Police.

APPENDIX I – COMPLETE LISTING OF THE OBSERVATIONAL SITES IN MICHIGAN

STRATUM 1	
County	**Location No.**
Ingham County	1. M-106 and M-52
	2. Lake Lansing and Hagadorn
	3. Barnes and Eden
	4. Michigan and Waverly
	5. Putnam and M-43
	6. M-43 and Williamston
	7. Barry and Zimmer
	8. Tihart and Cornell
	9. Holt and M-52
	10. Cavannah and Pennsylvania
	11. Rossman and Onodaga
	12. I-496 and Dunkel
	13. Cedar and US-127
	14. US-127 and Saginaw
Kalamazoo County	1. M-43 and 6th
	2. M-89 and 43rd
	3. H Ave. and 30th
	4. K Drive and 4 Mile
	5. AB and M-89
	6. M-89 and 42nd
	7. G and Riverview
	8. S Ave. and 8th
	9. S Ave. and 34th
	10. W Ave. and 2nd
Oakland County	1. Taft and 9 Mile
	2. Northwestern and Middlebelt
	3. Clarkston and Baldwin
	4. Snell and Rochester
	5. 14 Mile and Main
	6. Holly and Grange Hall
	7. Grand River and Taft
	8. I-696 and Orchard Lake
	9. M-10 and 8 Mile
	10. I-696 and Woodward
	11. Walton and Lapeer
	12. Dixie and Davisburg
	13. I-75 and Sashabaw
Washtenaw County	1. Ann Arbor and East Main
	2. Saline-Milan and Mooreville
	3. Mooreville and Stony Creek
	4. Dixboro and North Territorial
	5. Austin and Schneider
	6. Geddes and Earhart
	7. Zeeb and North Territorial
	8. I-94 and Jackson
	9. I-94 and Huron/Whitaker
	10. I-94 and State
	11. M-14 and Maple

STRATUM 2	
County	**Location No.**
Allegan County	1. 102nd and 42nd
	2. 30th and 134th
	3. US-131 and 135th
	4. M-89 and US-131
Bay County	1. M-61 and Standish
	2. Garfield/Rodgers and Anderson
	3. Finn and Munger
	4. I-75 and Pinconning
Eaton County	1. M-43 and Canal
	2. Ionia and M-50
	3. Nixon and Willow
	4. Royston and Island Highway
	5. Ainger and Battle Creek
	6. I-96 and Nash
	7. Battle Creek and Kalamo
	8. Main and Washington
Grand Traverse County	1. M-72 and M-31
Jackson County	1. Rosehill and Elm
	2. Wolf Lake and Cady
	3. Michigan and Lake
	4. Michigan and US-127
	5. US-127 and Page
Kent County	1. 4 Mile and Walker
	2. Sparta and Ball Creek
	3. US-131 and 10 Mile
	4. US-131 and 84th
	5. US-131 and 68th
	6. 10 Mile and Wabasis
	7. Lakeview and 14 Mile
	8. 17 Mile and Myers Lake
Livingston County	1. Grand River and Pleasant Valley
	2. M-36 and Dexter
	3. M-36 and M-106
	4. I-96 and Kensington
	5. US-23 and Clyde
	6. Old US-23 and M-59
Macomb County	1. Jefferson and Martin
	2. 22 Mile and Heydenreich
	3. Moravian and Harrington
	4. 27 Mile and Romeo Plank
	5. 34 Mile and M-53
	6. 23 and M-53
	7. I-696 and Groesbeck
Midland County	1. Redstone and 11 Mile
	2. Pine River and Badour
	3. Meridian and Lake Sanford
	4. Main and Washington
	5. M-20 and Homer
Ottawa County	1. Lake Michigan and 136th
	2. Polk and 104th

STRATUM 3	
County	**Location No.**
Berrien County	1. Pipestone and Naomi
	2. I-94 and Lakeside/Union
	3. I-94 and US-31
Calhoun County	1. 15 Mile and Michigan
	2. Evanston and Michigan
	3. B Drive and Beadle Lake
	4. I-94 and 5 Mile
Clinton County	1. M-21 and Lowell
	2. M-21 and Shepardsville
	3. Hyde and Welling
	4. Price/Main and Grange
	5. Clark and Upton
Genesee County	1. M-57 and Vassar
	2. Flushing and Ballanger
	3. Grand Blanc and Duffield
	4. Beecher and Elms
	5. Mt. Morris and I-75
	6. I-475 and Court
Ionia County	1. Zahm/Bridge and State
	2. Cross/Clarksville and Main
Isabella County	1. Blanchard and Winn
Lapeer County	1. M-24 and Coulter
	2. Otter Lake and Klam
Lenawee County	1. US-12 and Brooklyn
	2. Clinton Macon and Mills
	3. M-50 and Sand Lake

STRATUM 3 (Continued)	
County	**Location No.**
Marquette County	1. Hwy. 95 and Cr-LLK
	2. Washington and Main
Monroe County	1. Ostrander and Plank
	2. Ostrander and Bunce
	3. Telegraph and Dunbar
	4. US-23 and US-223
	5. US-23 and Dixon
	6. US-23 and Plank Road
Montcalm County	1. Condensary and Crystal
	2. Sidney and Vickeryville
	3. M-91 and Sidney
Muskegon County	1. Blackmer and Heights Ravenna
	2. Ravenna Heights and Ensley
	3. Sullivan and Ravenna Heights
Saginaw County	1. Birch Run and Bishop
Shiawasee County	1. Lansing and M-52
	2. Juddville and Chipman
	3. I-69 and M-52
St. Clair County	1. Lambs Rd. and M-19
	2. Perch and M-29
	3. I-69 and Riley Center Rd.
St. Joseph County	1. Gleason and US-131
	2. Banker and Klinger
Van Buren County	1. 687 and 384
	2. CR-380 and CR-681
	3. M-51 and CR-352
	4. I-196 and Phoenix

STRATUM 4	
County	**Location No.**
Wayne County	1. 6 Mile and Evergreen
	2. Telegraph and Northline
	3. Haggerty and Ecorse
	4. Wick and Wayne
	5. Eureka and Telegraph
	6. Woodward and Warren
	7. Palmer and Lilley
	8. Geddes and Canton Center
	9. Ecorse and Monroe
	10. Michigan and Greenfield
	11. Eureka and Middlebelt
	12. 7 Mile and M-53 (Van Dyke)
	13. Farmington and Plymouth
	14. Van Dyke and Davison
	15. Vernier and Mack
	16. Van Horn and Inkster
	17. Outer Drive and Rotunda/Village
	18. Annapolis and Wayne
	19. 8 Mile and Randolph
	20. Plymouth and Greenfield
	21. Goddard and Fort
	22. Grand River and 8 Mile
	23. 9 Mile and Greenfield
	24. Ford and Sheldon
	25. Vernier and Lake Shore Drive
	26. I-96 and Middlebelt
	27. I-96 and Livernois
	28. Warren and Southfield
	29. Randolph and Jefferson
	30. Greenfield and M-10
	31. Northline and I-75
	32. Schafer and Grand River
	33. I-94 and Harper/Vernier
	34. I-75 and Southfield
	35. Huron River and Sibley
	36. Rawsonville and Textile
	37. Main and Sumpter
	38. Sumpter and Oakville Waltz
	39. Waltz and Willow
	40. Savage and Haggerty/Bemis
	41. Rawsonville and Willis

RURAL STRATUM		
Area	**County**	**Location No.**
Marquette Media Market	Schoolcraft	1. US-2 and Hwy. 77
		2. Maple St. and Arbutus Ave.
		3. I-94 and Caribou
		4. US-2 and CR-442
	Delta	5. US-2 and KK Road
		6. Hwy. 35 and Brampton 27.5
	Dickenson	7. US-2 and Hamilton Lake/State St.
		8. US-2 and Upper Pine Creek
		9. Hwy. 69 and Conrad Rd.
		10. Hwy. 69 and Groveland Mine
	Iron	11 Hwy. 69 and Camp 5 Road
		12. Logan St. and Hwy. 69
		13. 7th Ave. and US-2 St.
		14. US-16 and US-2
		15. US-16 and Hwy. 28
	Houghton	16. Federal Forest 16/US 16 and Hwy. 38
		17. Hwy. 26 and Iroquios
		18. Hwy. 26 and Scout Camp
		19. US-41 and School
		20. US-41 and 1st
	Keewanaw	21. US-41 and 5th/Chassell Painesdale
		22. US-41 and Portage Entry
	Baraga	23. Hwy. 28 and W. Korpi/Saarinen
		24. US-41 and Old M-28
		25. US-41 and King Lake
	Marquette	26. US-41 and Wawanonowin
		27. US-41 and Lake Shore
		28. Hwy. 95 and CR-LLK
		29. Hwy. 95 and Beach
		30. Washington and Hwy. 28-BR
Traverse Media Market	Roscommon	1. Maple Valley and West Branch
	Oscoda	2. CR F-32 (Miller) and CR 489 (Red Oak)
	Antrim	3. Old State and Derenzy
		4. Comfort Road and Alden Hwy.
	Grand Traverse	5. M-113 and Hency
	Leelanau	6. M-22 and Carter
		7. 633 and 614
		8. Maple City Rd. and 667 and M-72
	Benzie	9. Cinder and Thompsonville
	Wexford	10. CR-38 and CR-25
	Missaukee	11. Finkle and 13 Mile
	Lake	12. 8 Mile and Bass Lake
		13. M-37 and Old M-63 (4 ½ Mile)
	Osceola	14. M-115 and 100th

RURAL STRATUM (Continued)		
Area	**County**	**Location No.**
Flint Media Market	Bay	1. M-61 and Standish
		2. I-75 and Pinconning
		3. Garfield/Rodgers and Anderson
		4. Finn and Munger
	Midland	5. State Rd. and North County Line
		6. Redstone and 11 Mile
		7. Pine River and Badour
		8. M-20 and Chippawa River
		9. Marsh and Flock/Lake Sanford
	Isabella	10. Millbrook and Winn
	Gratiot	11. Luce and Jefferson
	Saginaw	12. Kochville and Westervelt
		13. Birch Run and Bishop
	Shiawassee	14. I-69 and M-52
		15. Lansing and Church
		16. Lansing and M-52
Rural Control	Van Buren	1. M-51 and CR-352
		2. CR-380 and CR-681
		3. 687 and 384
		4. I-196 and Phoenix
	Allegan	5. 102nd and 42nd
		6. M-89 and US-131
		7. US-131 and 135th
		8. 30th and 134th
	Montcalm	9. M-91 and Sidney
		10. Sidney and Vickeryville
		11. Condensary and Crystal
	Ionia	12. Zahm/Bridge and State
		13. Cross/Clarksville and Main
	Lapeer	14. M-24 and Coultier
		15. Otter Lake and Klam

APPENDIX II – SAFETY BELT USE RATES BY COUNTY

Stratum and County	Safety Belt Usage Rate*	Standard Error
Stratum 1	95.2% ± 0.99%	0.50%
Ingham County	96.1% ± 0.66%	0.34%
Kalamazoo County	96.3% ± 1.34%	0.68%
Oakland County	93.4% ± 1.77%	0.91%
Washtenaw County	96.3% ± 1.68%	0.86%
Stratum 2	94.6% ± 1.30%	0.67%
Allegan County	97.9% ± 1.19%	0.60%
Bay County	92.0% ± 3.71%	1.89%
Eaton County	96.8% ± 2.78%	1.42%
Grand Traverse County	95.9%	N/A
Jackson County	93.3% ± 2.08%	1.06%
Kent County	91.1% ± 2.07%	1.05%
Livingston County	91.5% ± 4.22%	2.15%
Macomb County	94.5% ± 1.20%	0.61%
Midland County	93.7% ± 3.47%	1.77%
Ottawa County	94.7% ± 0.79%	0.40%
Stratum 3	92.7% ± 1.59%	0.81%
Berrien County	88.6% ± 2.52%	1.28%
Calhoun County	96.9% ± 2.57%	1.31%
Clinton County	89.3% ± 4.79%	2.44%
Genesee County	92.8% ± 3.51%	1.79%
Ionia County	83.4% ± 0.48%	0.25%
Isabella County	80.8%	N/A
Lapeer County	94.3% ± 6.47%	3.30%
Lenawee County	95.5% ± 2.34%	1.19%
Marquette County	85.4% ± 0.49%	0.25%
Monroe County	93.3% ± 3.51%	1.79%
Montcalm County	91.2% ± 7.24%	3.70%
Muskegon County	85.2% ± 8.45%	4.31%
Saginaw County	82.5%	N/A
Shiawassee County	95.8% ± 3.69%	1.88%
St. Clair County	98.3% ± 3.15%	1.61%
St. Joseph County	93.6% ± 8.55%	4.36%
Van Buren County	96.2% ± 1.51%	0.77%
Stratum 4 – Wayne County County	94.7% ± 0.97%	0.50%

* Weighted Safety Belt Usage ± 95% Confidence Interval

APPENDIX III – STATEWIDE SAFETY BELT USE RATES BY INTERSECTION

All Vehicle Safety Belt Use				
Stratum, County and Intersection	**Actual Total # of Belted Observations**	**Actual Total # of Observations**	**Weighted Total # of Belted Observations**	**Weighted Total # of Observations**
Stratum 1				
Ingham County				
Barnes & Eden	79	82	122	126
Barry & Zimmer	73	75	141	145
Cavannah & Pennsylvania	163	168	162	167
Cedar & US-127	159	166	625	653
Holt & M-52	59	60	55	56
I-496 & Dunkell	132	135	239	244
Lake Lansing & Hagadorn	79	83	254	267
M-106 & M-52	144	151	255	268
M-43 & Williamston	77	80	440	457
Michigan & Waverly	162	174	218	234
Putnam & M-43	149	152	260	266
Rossman & Onodaga	59	62	64	67
Tihart & Cornell	62	66	170	181
US-127 & Saginaw	166	172	387	401
Total	**1,563**	**1,626**	**3,392**	**3,532**
Kalamazoo County				
AB & M-89	94	95	258	261
G & Riverview	100	105	276	290
H Ave & 30th	68	72	111	118
K Drive & M-66	99	100	271	274
M-43 & 6th	113	116	452	464
M-89 & 42nd	114	121	228	242
M-89 & 43rd	98	101	202	208
S Ave & Sprinkle	61	63	216	223
S Ave & 8th	68	73	153	164
W Ave & 2nd	53	58	113	123
Total	**868**	**904**	**2,280**	**2,367**
Oakland County				
14 Mile & Main	98	111	660	746
Clarkston & Baldwin	119	123	345	357
Dixie Hwy & Davisburg	105	111	251	265
Holly & Grange Hall	119	124	435	453
I-696 & Orchard Lake	147	155	529	558
I-696 & Woodward	176	183	692	720
I-75 & Sashabaw	108	118	468	511
M-10 & 8 Mile	106	113	371	396
Middlebelt & N.Western	171	182	877	933
Shell & Rochester	68	74	250	272
Taft & 9 Mile	109	113	185	192
Taft & Grand River	122	128	165	173
Walton & Lapeer	104	117	327	368
Total	**1,552**	**1,652**	**5,555**	**5,944**

Washtenaw County				
Ann Arbor & East Main	76	82	145	157
Austin & Schneider	63	65	68	69
Dixborro & North Territorial	77	79	93	96
Geddes & Earhart	133	137	336	346
I-94 & Huron/Whittaker	69	77	360	402
I-94 & Jackson	141	145	761	783
I-94 & State	187	192	1,207	1,239
M-14 & Maple	134	137	394	402
Mooreville & Stoney Creek	121	123	273	278
North Territorial & Zeeb	85	88	106	110
Saline-Milan & Mooreville	101	108	146	156
Total	**1,187**	**1,233**	**3,889**	**4,038**
Stratum 2				
Allegan County				
102nd & 42nd	68	70	115	119
30th & 134th	97	97	258	257
M-89 & US-131	136	140	544	560
US-131 & 135th	125	128	372	381
Total	**426**	**435**	**1,289**	**1,317**
Bay County				
Finn & Munger	56	62	63	70
Garfield & Anderson	59	66	28	32
I-75 & Pinconning	75	83	68	75
M-61 & Standish	70	71	48	48
Total	**260**	**282**	**207**	**225**
Eaton County				
Ainger & Battle Creek	88	97	55	61
Battle Creek & Kalamo Hwy	137	146	80	85
I-96 & Nash	132	139	131	138
Ionia & M-50	75	76	85	86
M-43 & Canal	196	199	1,383	1,404
Main & Washington	75	85	24	27
Nixon & Willow	95	104	102	112
Royston & Island Hwy	125	141	92	104
Total	**923**	**987**	**1,952**	**2,017**
Grand Traverse County				
M-72 & M-31	189	197	691	720
Total	**189**	**197**	**691**	**720**
Jackson County				
Michigan & Lake	137	150	143	156
Michigan & US-127	89	92	127	132
Rosehill & Elm	87	91	110	115
US-127 & Page	102	111	156	170
Wolf Lake & Cady	125	136	135	146
Total	**540**	**580**	**671**	**719**

Kent County				
10 Mile & Wabasis	59	69	58	68
17 Mile & Myers Lake Ave	62	64	54	55
4 Mile & Walker	141	156	250	277
Lincoln Lake & 14 Mile	92	105	134	153
Sparta Ave & Ball Creek	87	96	89	99
US-131 & 10 Mile	141	152	222	240
US-131 & 68th	147	155	184	194
US-131 & 84th	72	82	84	95
Total	**801**	**879**	**1,075**	**1,181**
Livingston County				
Grand River & Pleasant Valley	102	112	125	137
I-96 & Kensington	128	147	212	243
M-36 & Dexter	47	50	65	70
M-36 & M-106	58	58	139	139
Old US-23 & M-59	163	173	187	199
US-23 & Clyde	111	128	133	153
Total	**609**	**668**	**861**	**941**
Macomb County				
22 Mile & Heydenreich	91	99	199	217
23 Mile & VanDyke	114	120	977	1,029
27 Mile & Romeo Plank	98	99	118	119
34 Mile & VanDyke	83	91	338	370
Groesbeck & I-696	127	133	718	753
Jefferson & Martin	79	84	237	252
Moravian & Harrington	103	109	287	303
Total	**695**	**735**	**2,874**	**3,043**
Midland County				
M-20 & Homer	123	132	40	43
Main & Washington	94	99	75	79
Curtis & Lake Sanford	79	92	28	33
Pine River & Badour	101	104	64	66
Redstone & 11 Mile	60	68	6	6
Total	**457**	**495**	**213**	**227**
Ottawa County				
Lake Michigan & 136th	149	157	220	231
Polk & 104th	58	62	48	52
Total	**207**	**219**	**268**	**283**
Stratum 3				
Berrien County				
I-94 & M-31	170	192	367	414
Pipestone & Naomi	79	94	84	100
Union Lake & I-94	132	142	99	106
Total	**381**	**428**	**550**	**620**

Calhoun County				
15 Mile & Michigan	122	132	61	66
B Drive & Beadle Lake	99	107	98	106
I-94 & 5 Mile	140	142	473	480
Michigan & Evanston	150	155	196	202
Total	**511**	**536**	**828**	**854**
Clinton County				
Clark & Upton	94	103	106	117
Grange & Main	93	111	81	96
Hyde & Welling	46	59	37	47
M-21 & Lowell	83	89	69	74
Shepardsville & M-21	104	111	116	124
Total	**420**	**473**	**409**	**458**
Genesee County				
Grand Blanc & Duffield	60	62	120	124
I-475 & Court	138	151	621	680
M-57 & Vassar	111	116	154	162
Mt. Morris & I-75	131	136	341	354
N Elms & Beecher	112	113	228	230
N. Ballenger & Flushing	150	170	516	584
Total	**702**	**748**	**1,980**	**2,134**
Ionia County				
Cross/Clarksville & Main	93	111	119	142
Zahm Bridge & State	129	155	242	290
Total	**222**	**266**	**361**	**432**
Isabella County				
Blanchard & Winn	118	146	215	265
Total	**118**	**146**	**215**	**265**
Lapeer County				
Lapeer & Coulter	85	88	175	181
Otter Lake & Klam	46	52	63	72
Total	**131**	**140**	**238**	**253**
Lenawee County				
Clinton Macon & Mills Macon	73	75	140	143
M-5O & Townline	93	96	459	474
US-12 & Brooklyn	92	98	521	555
Total	**258**	**269**	**1,120**	**1,172**
Marquette County				
Hwy 95 & Cr-LLK	79	92	75	88
Washington & Hwy 28-BR	156	183	194	227
Total	**235**	**275**	**269**	**315**

Monroe County				
Hull & Dunbar	93	99	220	234
Ostrander & Bunce	85	88	99	103
Ostrander & Tuttle-Hill	105	106	189	191
US- 23 & Plank Road	84	95	162	184
US-23 & Dixon	80	89	84	93
US-23 & US-233	95	105	136	149
Total	**542**	**582**	**890**	**954**
Montcalm County				
Condensary & Crystal	62	65	54	57
Crystal & Sidney	63	76	62	75
M-91 & Sidney	116	123	115	122
Total	**241**	**264**	**231**	**254**
Muskegon County				
Hts. Ravenna & Blackmer	105	135	105	134
Hts. Ravenna & Ensley	90	100	82	90
Hts. Ravenna & Sullivan	105	117	107	121
Total	**300**	**352**	**294**	**345**
Saginaw County				
M-57 (Fergus) & Bishop	47	57	19	23
Total	**47**	**57**	**19**	**23**
Shiawassee County				
I-69 & M-52	102	103	112	113
Juddville & Chipman	116	119	107	110
Lansing & M52	182	195	212	227
Total	**400**	**417**	**431**	**450**
St. Clair County				
M-19 & Lambs	66	69	116	121
M-29 & Perch	92	92	219	219
Riley Center & I-69	33	34	34	35
Total	**191**	**195**	**369**	**375**
St. Joseph County				
Banker & Klingor	54	62	49	56
Geason & US-131	123	127	106	109
Total	**177**	**189**	**155**	**165**
Van Buren County				
CR-681 & CR-380	90	96	271	289
CR-681 & CR-384	68	68	151	151
I-196 & Phoenix	123	128	498	519
M-51 & CR-352	110	114	406	420
Total	**391**	**406**	**1,326**	**1,379**

Stratum 4				
Wayne County				
8 Mile & Randolph	121	128	400	423
Canton Center & Geddes	122	129	353	373
Ecorse & Haggerty	106	110	562	583
Ecorse & Monroe	178	185	643	669
Eureka & Middle Belt	125	132	388	409
Evergreen & McNichols	138	157	638	726
Farmington & Plymouth	149	156	1,379	1,444
Ford & Sheldon	216	221	613	627
Fort & Goddard	153	158	595	614
Grand River & 8 Mile	162	170	680	713
Greenfield & 9 Mile	146	154	875	923
Greenfield & M-10	164	168	664	680
Greenfield & Michigan Ave	184	198	635	683
Greenfield & Plymouth	124	141	947	1,077
Huron River & Sibley	105	110	177	185
I-75 & Southfield	156	165	1,173	1,241
I-94 & Harper (Vernier)	52	52	352	352
I-96 & Livernois	114	122	453	485
Inkster & Van Horn	119	125	140	147
Jefferson & Randolph	128	136	1,086	1,154
Main & Sumpter	107	112	407	426
Middle Belt & I-96	184	191	903	938
North Line & I-75	135	139	402	414
Palmer & Lilley	109	114	178	186
Rawsonville & Huron River	111	120	466	504
Rawsonville & Willis	107	120	191	214
Village & Outer Dr	182	184	701	709
Haggerty & Bemis	70	80	93	106
Schafer & Grand River	148	162	611	669
Southfield & Warren	149	155	682	710
Sumpter & Oakville Waltz	41	44	59	64
Telegraph & Eureka	172	179	896	932
Telegraph & North Line	151	157	1,385	1,440
VanDyke & 7 Mile Rd.	159	176	476	527
VanDyke & Davison	115	126	276	302
Vernier & Lake Shore Drive	158	160	644	652
Vernier & Mack	137	156	222	252
Waltz & Willow	71	77	114	124
Wayne & Annapolis	109	115	429	453
Wayne & Wick	91	94	241	249
Woodward & Warren	132	138	783	819
Total	**5,400**	**5,716**	**22,912**	**24,198**